

I CLAIM:

1. A burner assembly for a furnace having a firebox defining a combustion zone, said assembly comprising:

a first annular tile defining a path for flow of combustion air;

a second annular tile concentric with said first annular tile, said second annular tile having an upstream portion with an internal diameter which is larger than an external diameter of a downstream portion of said first annular tile, said upstream portion being positioned in surrounding relationship to said downstream portion, whereby a ring-shaped conduit which extends along said path is defined between said tiles,

said tiles being adapted for placement in a combustion zone of a furnace with said conduit in direct fluid communication with flue gases surrounding said zone,

the arrangement of the tiles being such that combustion air flowing along said path past a downstream end of the conduit induces a flow of said flue gas through said conduit for entrainment by said flow of combustion air; and

a gas jet positioned adjacent an inlet to said conduit providing a flow of fuel gas for admixture with said flow of flue gas.

2. A recirculated flue gas inducing burner assembly comprising:

a fuel nozzle arrangement including a nozzle positioned to direct a flow of fluid fuel along a flow path and into a combustion zone inside a furnace firebox;

a first tile having an elongated central opening, said first tile being located so that said central opening surrounds said nozzle and directs an annular flow of combustion air past said nozzle in surrounding relationship to said flow path, said first tile having an outer peripheral face which extends therearound in surrounding relationship relative to said opening;

a second tile having an elongated central passageway, said second tile being located so that said central passageway surrounds said path, said second tile having an internal face which extends around said central passageway, said internal face being disposed in spaced, facing relationship relative to said peripheral face of the first tile, said faces defining therebetween an annular space which extends in a direction along said path,

said tiles being arranged such that said annular space is in direct intercommunication with an interior area of a furnace firebox when the burner is operationally installed relative to a furnace,

the arrangement of said tiles being such that a flow of recirculated flue gas from said interior area and through said annular space is induced by combustion air flowing through said opening of said first tile; and

a gas jet positioned adjacent an inlet to said conduit providing a flow of fuel gas for admixture with said flow of flue gas.

3. A burner assembly comprising an elongated tile formation having a central axis and including first and second tiles presenting an air passageway configured for conducting combustion air in an axial direction toward a combustion zone, said first and second tiles each having an axially elongated annular body segment, the annular body segment of said first tile being disposed in surrounding relationship to said passageway, said annular body segment of said first tile having an outer surface and said annular body segment of said second tile having an inner surface, said annular body segments being arranged concentrically with said outer surface spaced radially inwardly from said inner surface so as to define therebetween an axially elongated recirculated flue gas conduit having a downstream end that is in communication with said passageway and an upstream inlet end that is disposed in a plane that is transverse to said axis.